

No. 721,837.

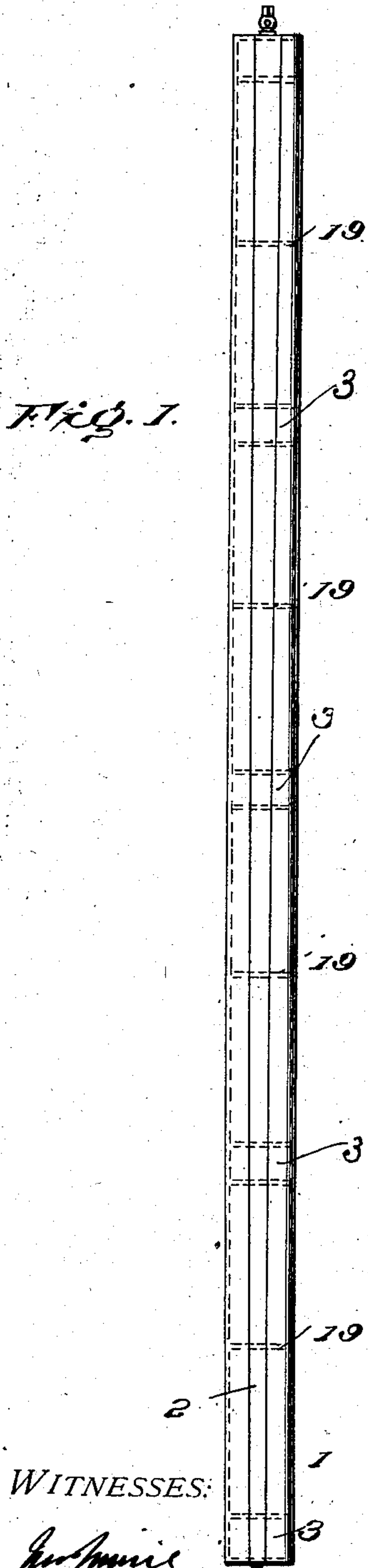
PATENTED MAR. 3, 1903.

W. D. ROSS.
CORE BAR.

APPLICATION FILED MAR. 8, 1902.

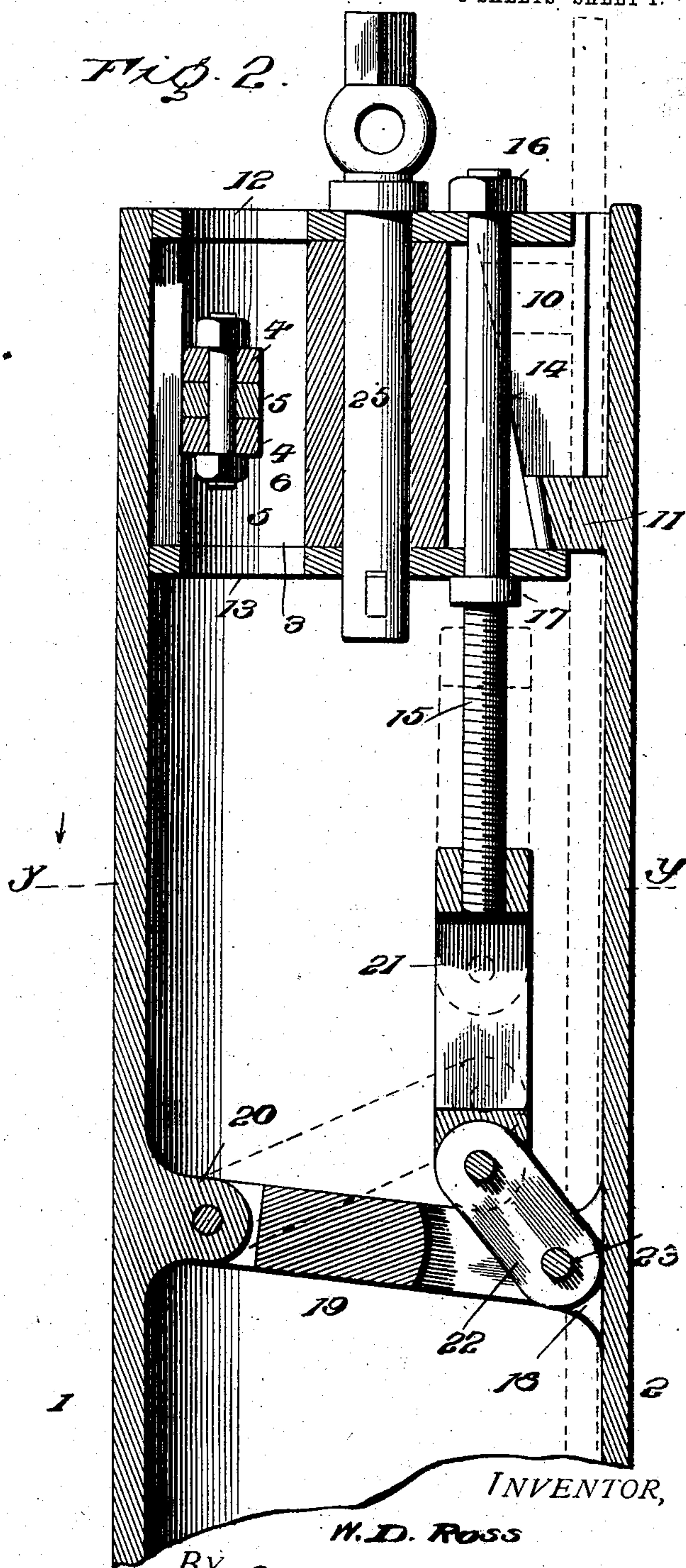
NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

James
Robt



INVENTOR,

W. D. ROSS

By

Robert A. Lacey

Attorneys

No. 721,837.

PATENTED MAR. 3, 1903.

W. D. ROSS.
CORE BAR.

APPLICATION FILED MAR. 8, 1902.

NO MODEL.

3 SHEETS—SHEET 2.

Fig. 3.

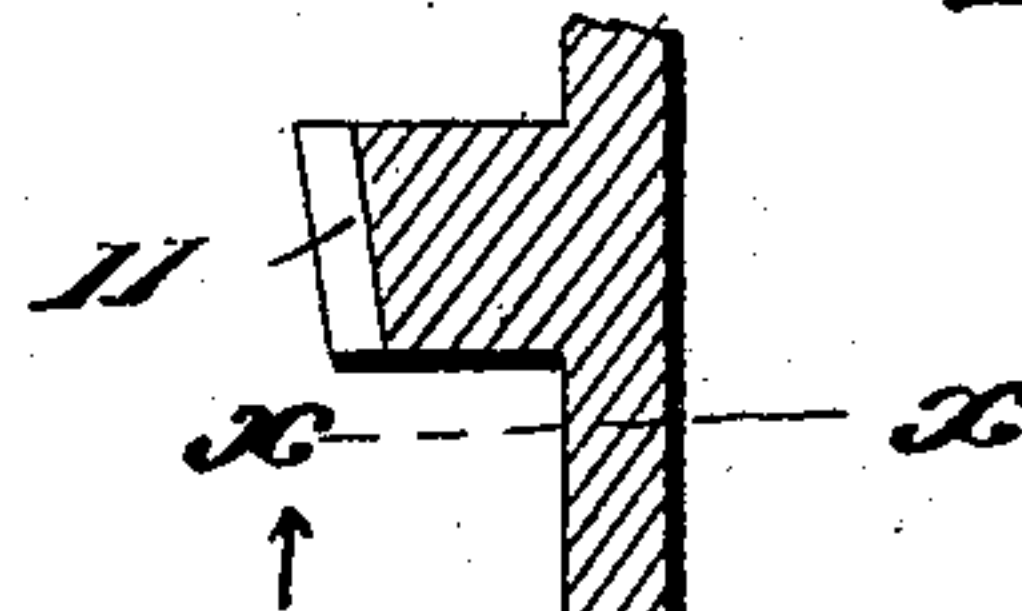
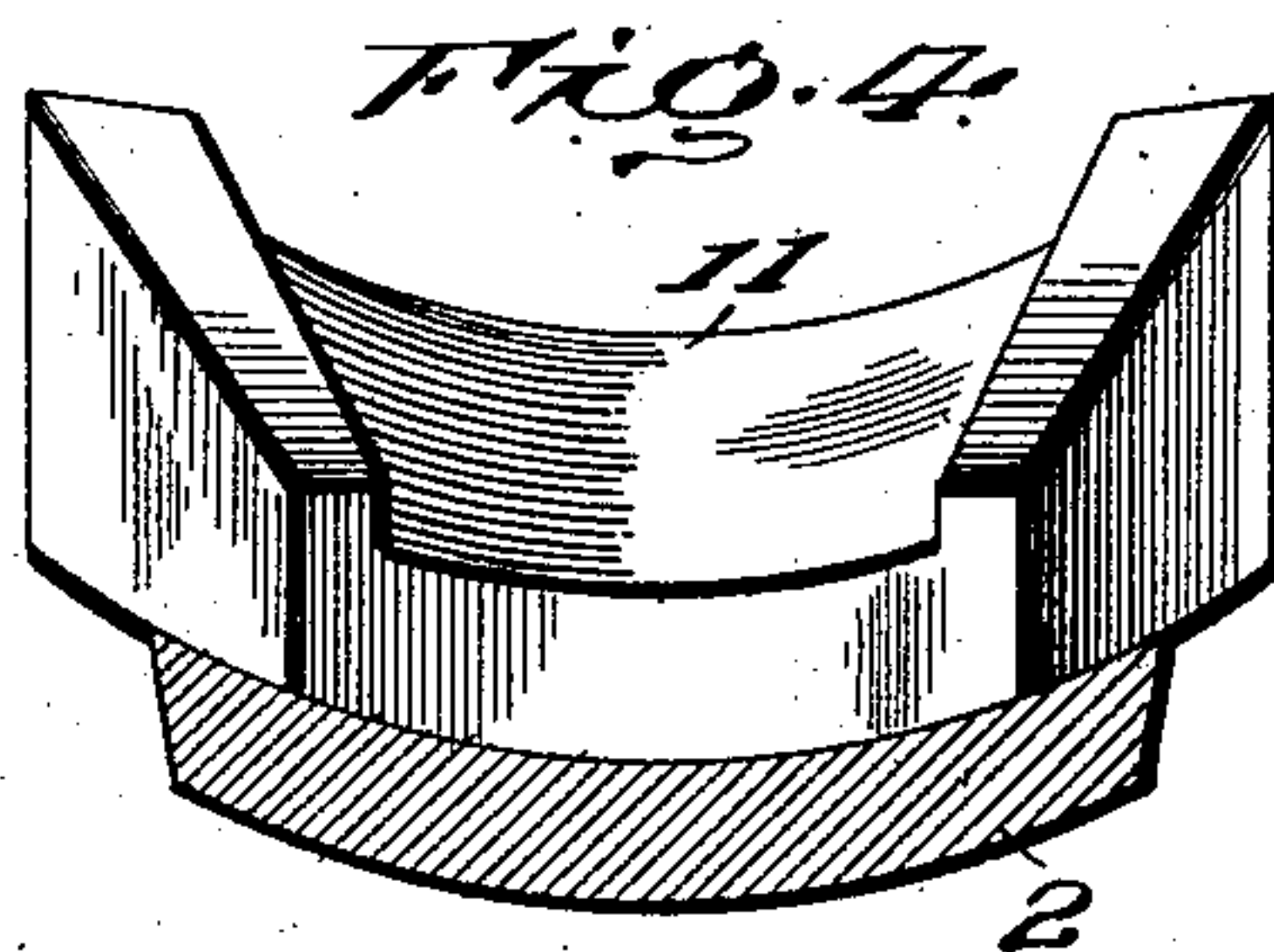
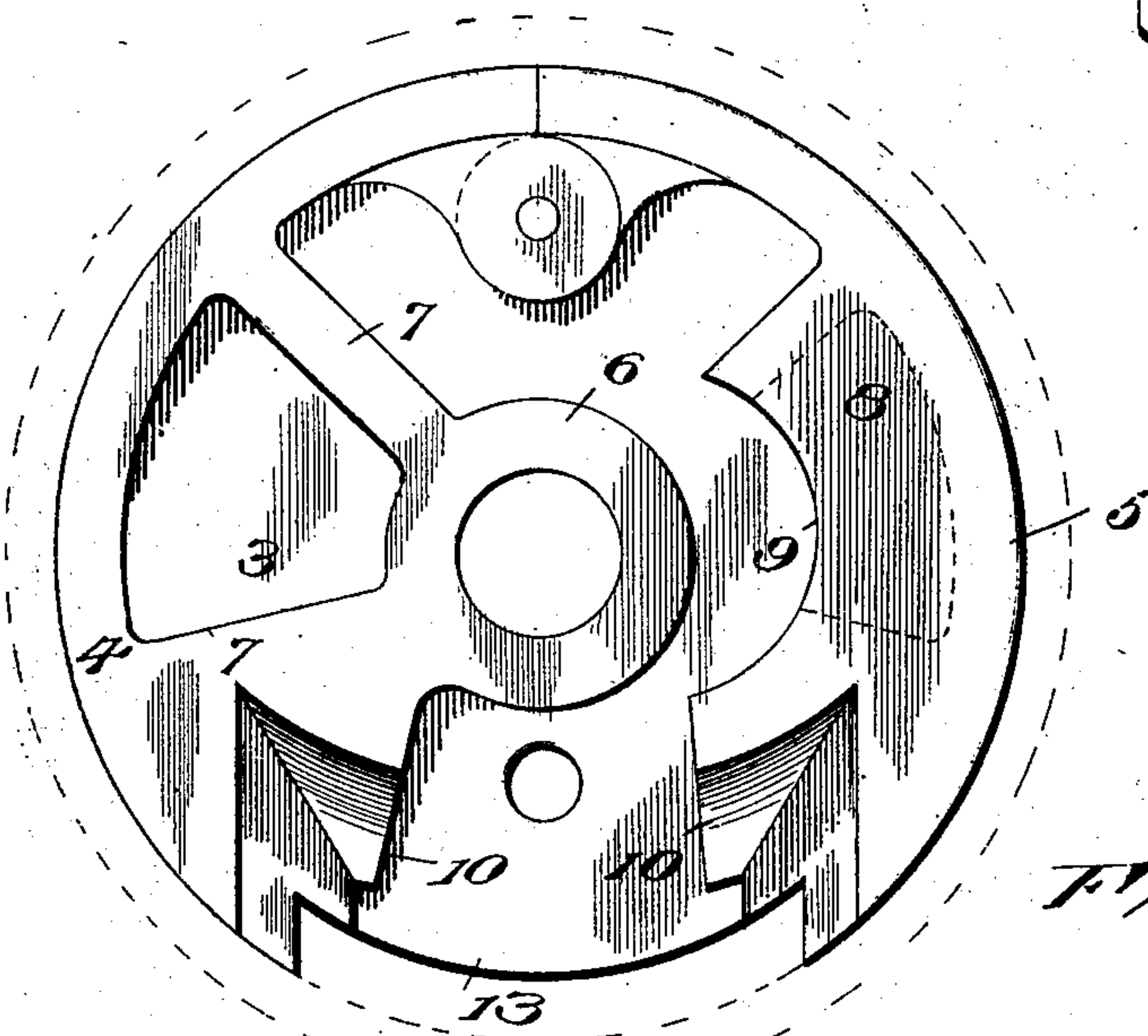
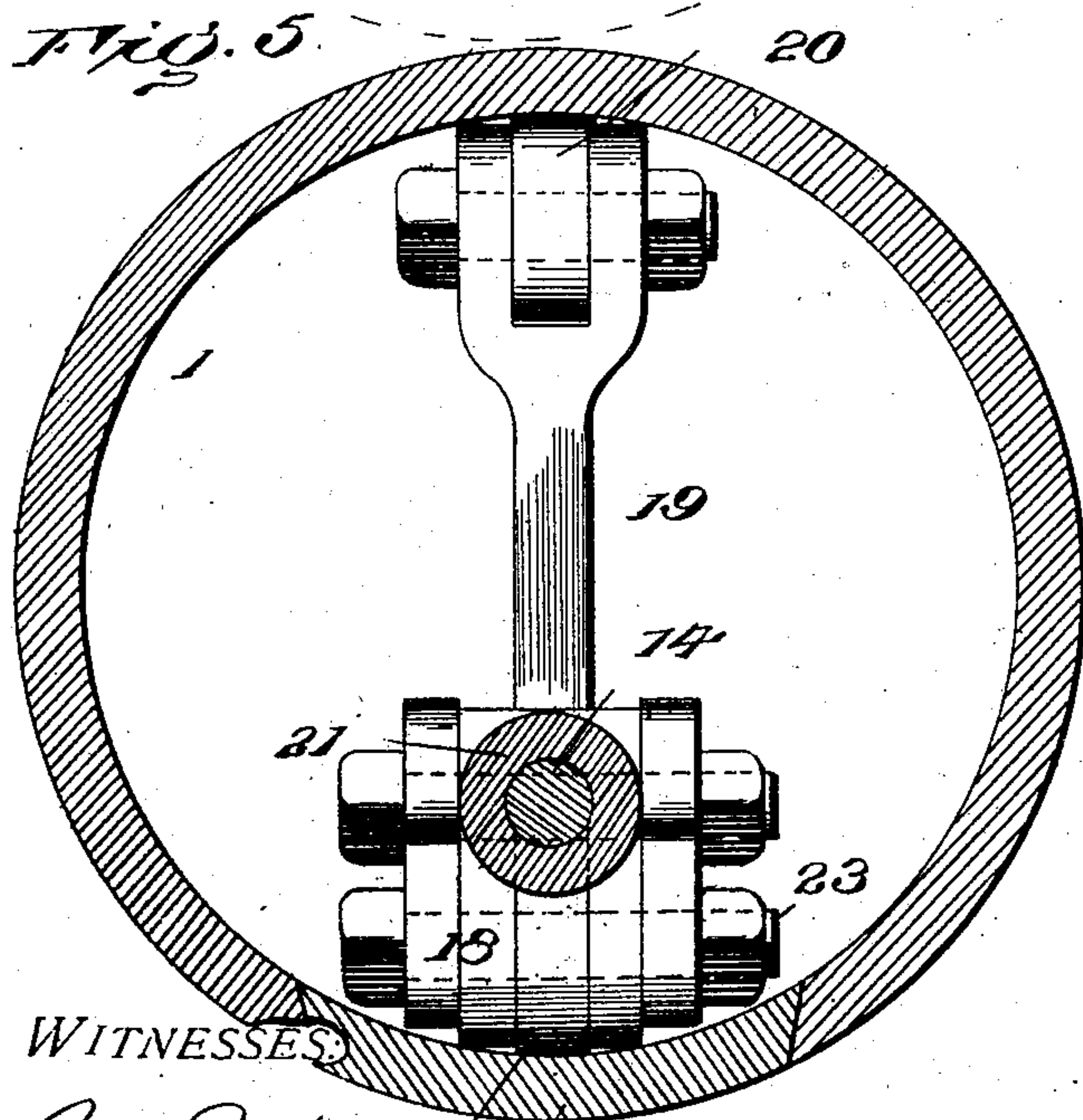


Fig. 6

Fig. 5.



WITNESSES

Geo. J. Miller
Jno. Robt

INVENTOR
W. D. Ross

BY
R. H. Lacey

Attorneys

No. 721,837.

PATENTED MAR. 3, 1903.

W. D. ROSS.
CORE BAR.

APPLICATION FILED MAR. 8, 1902.

NO MODEL.

3 SHEETS—SHEET 3.

FIG. 7.

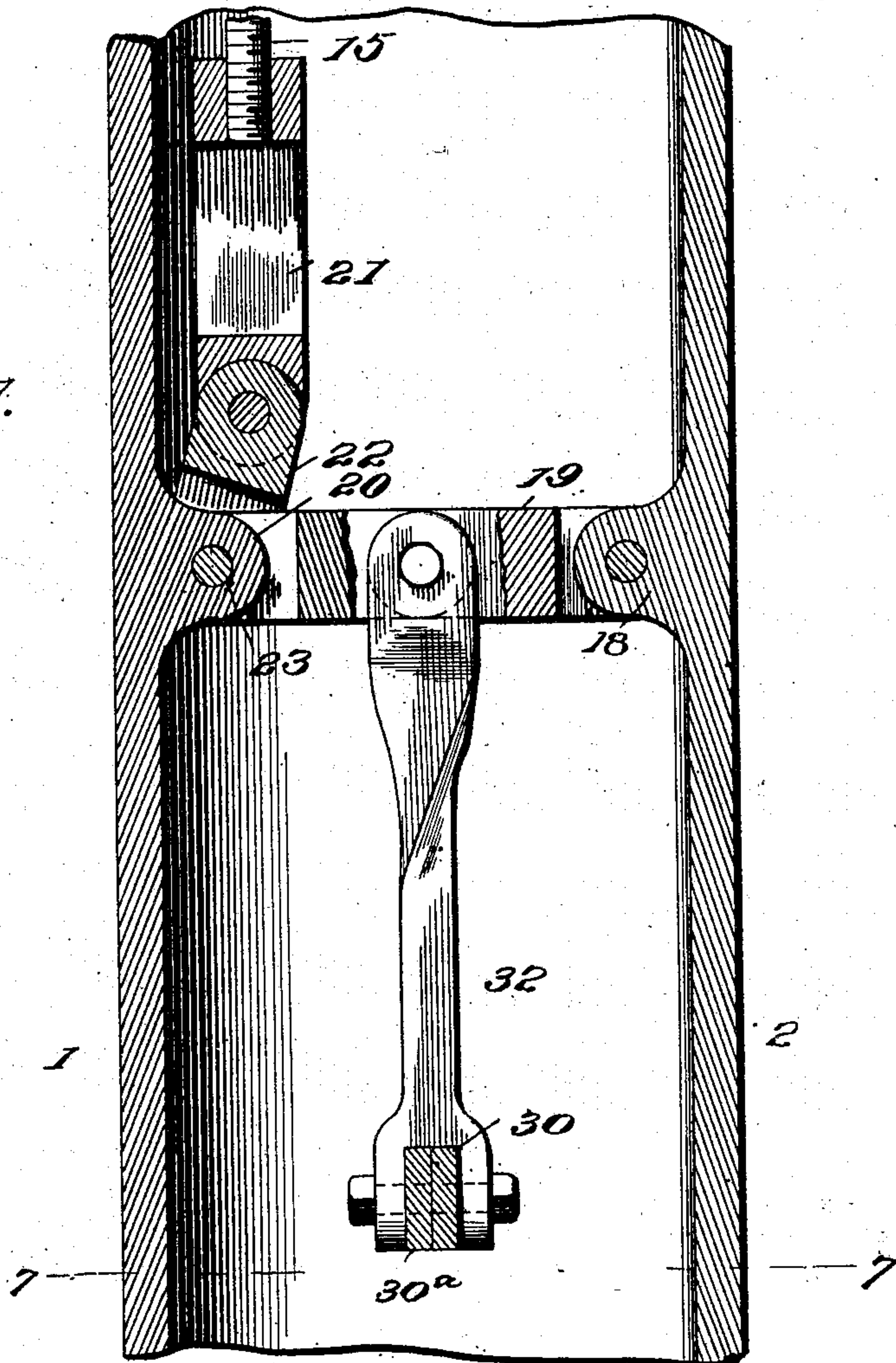
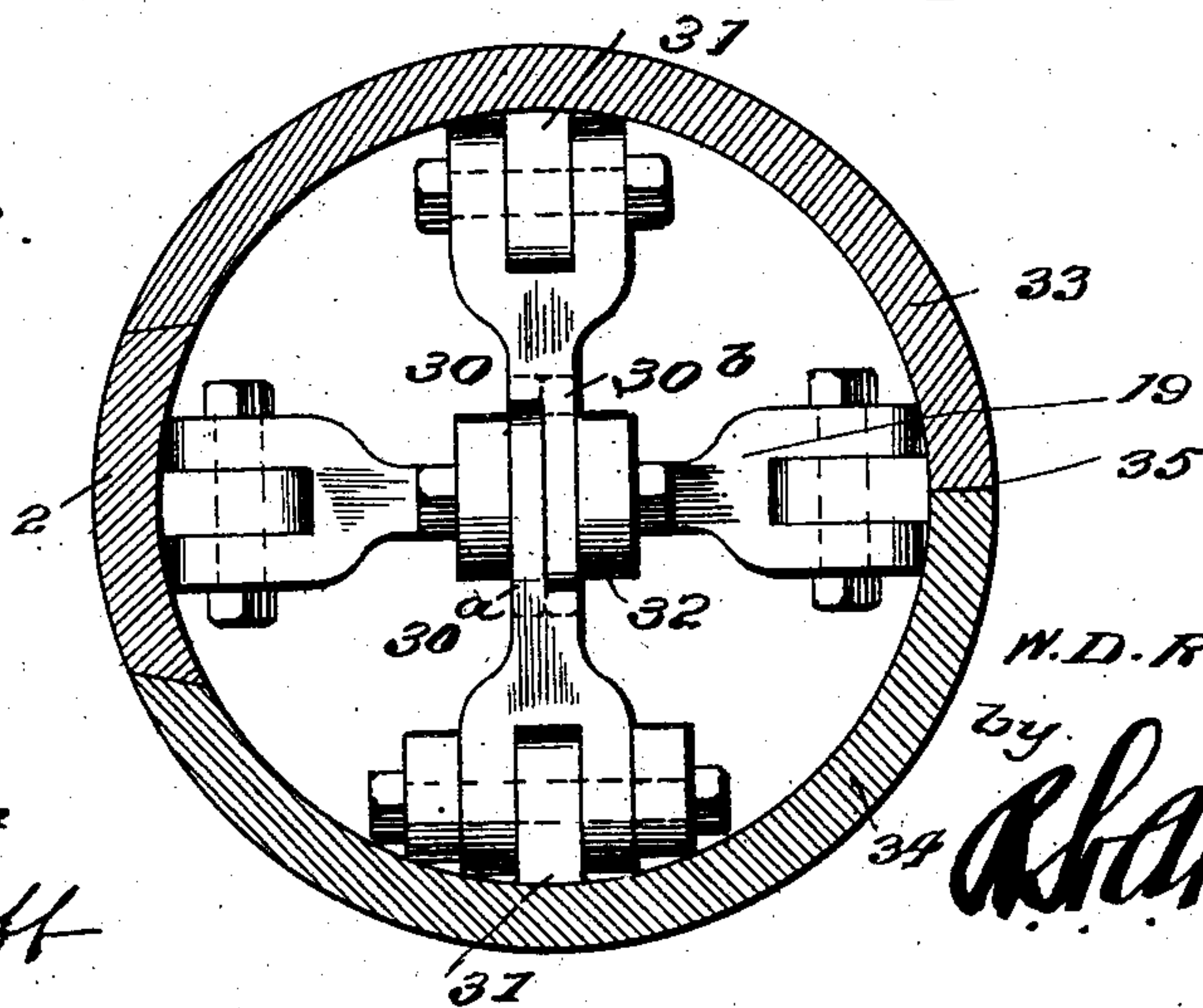


FIG. 8.



Witnesses

John J. Rott
John J. Rott

Inventor

W. D. ROSS,

by

Alfred Lacey
Attorney

UNITED STATES PATENT OFFICE.

WALTER D. ROSS, OF WOODLAWN, ALABAMA.

CORE-BAR.

SPECIFICATION forming part of Letters Patent No. 721,837, dated March 3, 1903.

Application filed March 8, 1902. Serial No. 97,382. (No model.)

To all whom it may concern:

Be it known that I, WALTER D. ROSS, a citizen of the United States, residing at Woodlawn, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Core-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is designed to provide a collapsible core-bar for use in casting pipes, columns, and other hollow or tubular bodies so as to admit of the ready removal of the core after the molten metal has been poured and begins to cool, thereby allowing for contraction incident to the cooling of the metal without injury to the core-bar or binding of the same to such an extent as to render its removal difficult and time-consuming.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a collapsible core-bar embodying the invention. Fig. 2 is a vertical central section of the upper end portion on a larger scale. Fig. 3 is an end view of a head or support. Fig. 4 is a transverse section of the movable section about on the line X X of Fig. 6 looking in the direction of the arrow. Fig. 5 is a section on the line Y Y of Fig. 2 looking in the direction of the arrow. Fig. 6 is a longitudinal section of a portion of the movable part or section of the core-bar. Fig. 7 is a vertical section illustrating an additional brace. Fig. 8 is a cross-section of the same on the line 7 7 of Fig. 7.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The core-bar may be of any length, size, and cross-sectional outline and is composed of the sections or parts 1 and 2, having their

subjacent longitudinal edge portions outwardly converged, this being essential to allow for the replacement of the part 2 after the core-bar has been collapsed. The core-bar is stiffened and braced at its ends and at points between its terminals by means of heads or supports 3, which, as shown most clearly in Fig. 3, are composed of hinged-connected parts 4 and 5. One of the parts or sections of the heads is provided with a hub 6, which is connected to the rim portion by webs 7. The other part or section 5 has an inner brace or extension 8 cut away upon its inner end, as shown at 9, to snugly fit the hub portion 6, whereby the parts are braced when the core-bar is collapsed. A wedge-shaped seat 10 is formed in the outer side of each of the heads opposite the hinged joint between the parts and is adapted to receive a wedge 11 of the section or part 2. This wedged-shaped seat 10 extends into each of the parts 4 and 5 to approximately an equal distance, and when the wedge 11 is moved longitudinally therein the parts 4 and 5 of the head are spread and the core-bar is expanded. This seat 10 is of a depth to admit of a transverse movement of the wedge simultaneously with its longitudinal movement, this being necessary in order to allow for the combined longitudinal and lateral movement of the part or section 2. Plates 12 and 13 are located upon opposite sides or above and below the topmost head and are secured to the section 4. Openings are formed in the plates 12 and 13 in coincident relation for the passage therethrough of the rod 14, which has its inner end portion threaded, as shown at 15. This rod 14 has a head 16, to which a wrench, spanner, or other tool is adapted to be fitted for rotating the rod to effect a longitudinal movement of the part 2 in a manner presently to be described. A shoulder or stop 17 about midway of the rod 14 engages with the inner or lower plate 13, and the two plates are confined between the head 16 and shoulder 17. The heads 3 are secured to the part 1 of the core-bar in any substantial way, preferably by means of countersunk screws or bolts (not shown) entering the part 1.

The section or part 2 of the core-bar extends the entire length of the device and is

provided at intervals in its length with wedges 11, corresponding in position and number with the heads 3 for coöperation therewith, and with apertured lugs 18 intermediate of the wedges 11. Links 19 extend transversely of the core-bar and are located intermediate of the heads and have pivotal connection at one end with the lugs 18 and are pivotally connected at their opposite ends with lugs 20, extended inward from the part 1. These links 19 constitute braces to supplement the action of the wedges 11 in holding the section or part 2 in proper position when the core-bar is in condition for use. Upon moving the part or section 2 longitudinally it at the same time is drawn inward by the swinging action of the links 19, as shown most clearly by the dotted lines in Fig. 2. In order to effect a longitudinal movement of the part 2 a link 21 has screw-thread connection with the inner threaded end 15 of the rod 14, and a link 22 connects said link with the topmost lug 18, preferably by means of the same pin or fastening 23 employed for pivotally connecting the link 19 thereto.

The core-bar is provided at its lower end with a projection 24 for centering when properly positioned in the mold, and its upper end is provided with an eyebolt 25, to which the block and tackle (not shown) is applied for raising and lowering the core-bar, said eyebolt being fitted into openings formed in the plates 12 and 13 and passing through the hub portion 6 of the topmost head or support. In this connection it is to be observed that it is not essential that the heads or supports 3 below the top one be provided with the part 6.

When the parts 1 and 2 of the core-bar are in place, as indicated in Fig. 5, the outer surface of the core-bar is coated with loam or any other material, and after the same has been baked the core-bar is placed in position within the mold. After the pipe, column, or the like has been cast and is chilled the rod 14 is rotated so as to lift the link 21 and the movable part 2 of the core-bar, and this operation withdraws the part 2 from between the ends of the part 1, thereby permitting the core-bar to collapse as the metal cools and also allowing for the ready removal of the core-bar after the casting has sufficiently cooled to admit of this step being safely performed. A rotation of the rod 14 in the reverse direction forces the link 21 downward or inward, and the wedges 11, riding in the seats 10 of the heads 3, spreads the same and expands the part 1 of the core-bar and admits of the replacement of the part 2, as will be readily comprehended.

In Fig. 7 a brace 30, composed of two members 30^a 30^b, is shown, each member having ears, through which and perforated lugs 31 bolts are passed. A bar 32 is pivotally fastened to the inner ends of the members 30^a 30^b and the bar 19, the latter, as before described, being connected to the core-bar 2

and section 1. The brace is positioned at right angles to the bar 19, so that when the screw 15 is operated the ends of the members 30^a 30^b are drawn in, causing the two parts 33 and 34, corresponding to part 1 in the other figures, to collapse from the joint 35, making the bar independent of the pressure caused by the cooling of the metal. The braces may be arranged to coact with each head and as many as may be necessary.

Having thus described the invention, what is claimed as new is—

1. A collapsible core-bar comprising sections outwardly converged at their corresponding longitudinal edges, heads or supports at intervals in the length of the core-bar comprising pivoted movable sections of approximately semicircular form, said sections adapted to circumferentially brace the sections of the core-bar, wedges located upon the movable part of the core-bar and adapted to coöperate with wedge-shaped seats upon the heads or supports, and means for imparting a simultaneous longitudinal and lateral movement to the shiftable part of the core-bar, substantially as set forth.

2. A collapsible core-bar comprising sections, supports or heads located at intervals in the length of the core-bar and comprising movable sections, wedges applied to the movable part of the core-bar for coöperation with the supports or heads, and means for longitudinally and laterally moving the shiftable part of the core-bar, substantially as set forth.

3. A collapsible core-bar comprising sections outwardly converged at their subjacent longitudinal edges, sectional heads or supports at intervals in the length of the core-bar and having wedge-shaped seats directly opposite the movable part of the core-bar, wedges applied to the movable part of the core-bar and adapted to coöperate with the wedge-shaped seats of the said heads or supports, and means for imparting a simultaneous longitudinal and lateral movement to the shiftable part of the core-bar, substantially as set forth.

4. In a collapsible core-bar comprising sections, heads or supports at intervals in the length of the core-bar and having wedge-shaped seats, wedges applied to the movable part of the core-bar for coöperation with the wedge-shaped seats of said heads, transverse links located intermediate of the heads and having pivotal connection with opposite parts of the core-bar sections, and means for imparting a longitudinal movement to the section of the core-bar provided with the wedges, whereby a simultaneous lateral movement is also imparted to the said movable section through the action of the swinging links, substantially as set forth.

5. A collapsible core-bar comprising sections, heads or supports at intervals in the length of the core-bar composed of pivoted parts having wedge-shaped seats in the ends

5 opposite the joint, wedges applied to the movable part of the core-bar for coöperation with the wedge-shaped seats of said heads, links having pivotal connection with the parts of the core-bar and adapted to brace the same and to effect a lateral movement of the movable section, a threaded rod, and connecting means between said threaded rod and the

movable section of the core-bar, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER D. ROSS. [L. S.]

Witnesses:

JOHN OLIVER REGAN,
JOSEPH BENJ. SANDIFER.